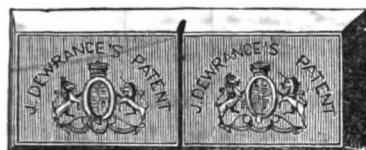




PATENT ANTI-
FOR MACHINERY AND



FRICTION METALS.
AXLE BEARINGS.



These Anti-Friction or White Metals are too well known to require either description or testimonial at this date—the former Metal having established for itself a valuable reputation amongst Engineers and Mechanics generally for wearing well and greatly decreasing friction when used as a lining for steps, eccentric straps, slide valves, blocks, &c., in all cases whether of light or heavy pressure, and thereby economizing power, wear and tear, and lubricative material.

JOHN DEWRANCE AND CO. still exercise the same care in the mixture and manufacture of these Metals, made from only the best materials, which, together with their long experience for upwards of twenty-four years, has secured and continues to them the chief supply to most of the Railway, Railway Carriages, Steamship, and Engineering Companies, and is therefore a guarantee of the quality supplied in the execution of all orders with which J. D. and Co. may be favoured.

The advantages of the use of our Patent Anti-Friction Metals, which we supply to most of the leading Railways and Engineers, may be seen from the results of the working of an experiment with one of the South-Western Railway Carriages, and which are well worthy of the attention of Engineers, not only as showing the large saving in the material by the durability of the metal, but as also showing the very great saving in traction power by the use of our Patent Anti-Friction Metals.

The axle boxes in use on the South-Western Railway are "Beattie's Patent Oil Boxes," fed with oil from the bottom, and the following is the report of the performance of the boxes and bearings:

EXPERIMENT WITH NO. 35 SECOND-CLASS CARRIAGE.

"This Carriage commenced running August 29th, 1864, and has continued running every week day to Exeter and back until this date (May 12th, 1865), and is still working satisfactorily.

"During the whole of this period an Examiner has travelled with it and carefully noted its working; an accurate account has also been kept of the quantity of oil used, and the loss in weight of the bearings.

"The weight of the Carriage was 6 tons 10 cwt., running on four wheels, bearing 6 by 3 inches; Axle Boxes Beattie's Patent, Brass Bearings lined with Babbitt's Patent Metal; oil only was used.

"Total weight of bearings (4) 23 lb. 8 oz.	Oil used 3 qts. 1 pint.
Total miles run (exclusive of shunting) 65,264.	Loss of weight in bearings 6½ oz.

Equal to a loss of 1¼ oz. per bearing, showing the proportions of 9323 miles to one pint of oil, and 10,043 miles to 1 ounce of bearing, or ¼ of an ounce loss in each bearing per 10,043 miles.

"The bearings and journals are in excellent condition, and the wheels of the carriage have been turned up.

"The above experiment has been most carefully conducted, and the results may be relied on as being perfectly accurate.

"The average mileage of a Railway Carriage is about 22,000 miles per annum; the above therefore represents about three years' ordinary working.

"ENGINEER'S OFFICE, NINE ELMS WORKS,

"May 12th, 1865."

The saving in engine power obtained by the use of white metal, properly and carefully made, with well-oiled surfaces, can hardly be estimated, but it will be at once seen by the result of this attested trial, made to prove the saving by the use of oil over grease in Railway Carriage bearings, that the saving in power must be very great.

There is also a considerable saving in cost of renewing, as the skeleton of the bearing, which is made of common gun metal, is used over and over again, being re-lined with white metal, and the fittings to the axle box which would be required were new gun-metal bearings used, is altogether saved.

JOHN DEWRANCE AND CO.,

176, GREAT DOVER STREET, LONDON, S.E.

DEWRANCE'S STEAM AND WATER COCK.

MALLINSON'S PATENT.

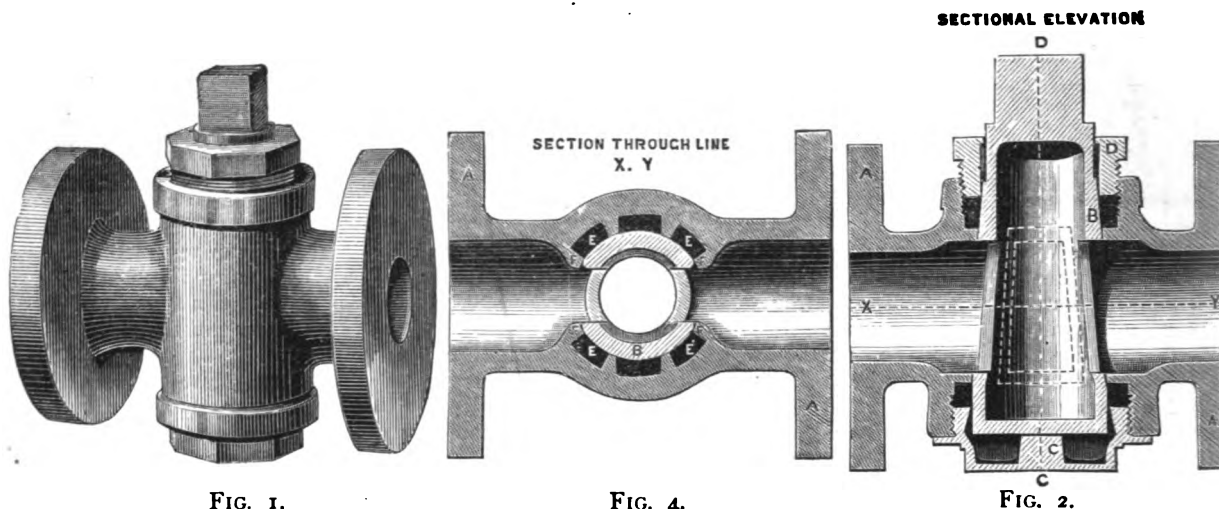


FIG. 1.

FIG. 4.

FIG. 2.

EXPLANATION OF FIGURES.

Fig. 1 is an illustration of Cock complete. Fig. 2 is a Sectional Elevation. Fig. 4 is a Section through line X Y. A is the body or shell of Cock. B is the Plug. C is the bottom Cap. D is the Screw Gland. E E E E are recesses into which is put the Patent Packing. F F F F are projections which are bored to fit the Plug.

The Plug B is kept in its proper position in the shell by the Cap C, which must always be screwed tight to its face. The recesses E E E E are filled with Patent Packing, protected by brass shields, on which alone the Plug B takes its bearing, making it perfectly tight under the highest pressures, while at the same time it works quite smooth and easy.

MESSRS. J. DEWRANCE AND CO. having completed and perfected an invention submitted to them, having for its immediate object the prevention of the irregular and unsatisfactory working of ground Plug Cocks, and of which the other very remarkable advantages are enumerated below, feel themselves now in a position to supply this new system of Plug Cocks to their customers, and to recommend them with confidence, as they have for some time subjected them to the severest tests without failure. They submit as the result of their experience the following remarkable and important advantages obtained by this invention :

- 1st. The Plug is not ground, but is made steam-tight by Patent Packing.
- 2nd. As the Plug works on an Elastic Bearing, it will never wear out.
- 3rd. Should it in time leak, it can be re-packed by any unskilled person without either disconnecting the Cock or taking out the Plug.
- 4th. It presents a clear, full, straight way, equal to the bore of the pipe.
- 5th. It is as serviceable when made of cast iron as of gun metal.
- 6th. It is suitable for the highest pressures of steam or water and gas.
- 7th. It can never set fast, but will always work easy.
- 8th. It cannot be injured by frost.
- 9th. It is cheaper than any other form of Cock or Valve.
- 10th. This principle can be applied to all forms of Plug Cocks or Valves.

This principle is also applied to all kinds of Locomotive and other Boiler Fittings, such as Water Gauges, Warming Cocks, Injector Cocks, Blow-off Cocks, Gauge Cocks, Tender Cocks, Brewers' and Plumbers' Cocks.

JOHN DEWRANCE AND CO.,
176, GREAT DOVER STREET, LONDON, S.E.

MALLINSON'S PATENT.

DEWRANCE'S STEAM COCKS, WITH MALE AND FEMALE OR TWO FEMALE ENDS.

Size	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"
Price, Cast Iron	—	—	9/6	15/0	18/0	26/0
" " with Gun-Metal Plugs	—	—	12/0	16/0	22/0	32/0
" All Gun Metal	6/0	8/6	13/6	18/0	27/6	42/0

If Polished, 20 per cent. extra.

DEWRANCE'S STEAM COCKS, WITH FLANGES.

Size	$\frac{3}{4}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"	3 $\frac{1}{2}$ "	4"	5"	6"
Price, Cast Iron	—	11/8	17/0	20/0	30/0	40/0	60/0				
" " Gun-Metal Plugs	—	13/3	21/0	25/0	35/0	60/0	80/0				
" All Gun Metal	12/0	15/0	27/0	32/0	49/6	80/0	130/0				

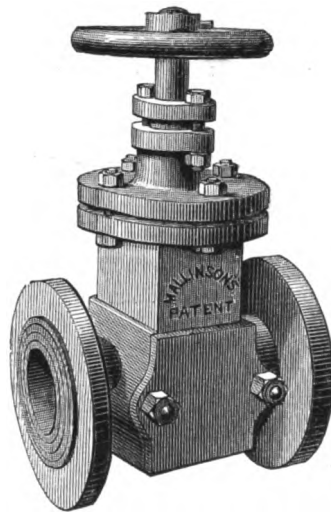
DEWRANCE'S DOWN-WAY BLOW-OFF COCK, WITH FLANGES.

Size	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"	3 $\frac{1}{2}$ "	4"	5"	6"
Price, Cast Iron	12/8	18/0	20/0	30/0	43/0	65/0				
" " Gun-Metal Plugs	16/0	22/0	25/0	35/0	65/0	82/0				
" All Gun Metal	18/0	28/0	34/0	51/6	83/0	130/0				

*Prices and Illustrations of every other form of Cock of this principle on application.*DEWRANCE'S
FOR STEAM,

MALLINSON'S

These Valves are made perfectly tight by Patent Packing, protected by Brass Shields, which forms an Elastic Bearing, and against which the faces of the

VALVES
WATER, AND GAS.

PATENT.

Sliding Valve work. They will be found greatly superior to all others, whether for Steam, Water, or Gas.

The important advantages which these Valves possess are as follows :

- 1st. They are not affected by the unequal expansion of Metals, which is so often a cause of leakage, especially in large sizes.
- 2nd. As the working faces are parallel, any accumulation of dirt, &c., is scraped off on its being shut down ; this is an important point as regards Gas Valves.
- 3rd. They are steam-tight on both sides.
- 4th. They can be re-packed (if necessary) at the side doors without being removed from their fixed position.
- 5th. They are cheaper than any other form of Valves.
- 6th. The working parts are made of Gun-metal, therefore will not rust up.

Sizes ..	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"
Prices ..	25/0	35/0	43/0	49/0	68/0	83/0	115/0	135/0	170/0	195/0	220/0	250/0	280/0

For Larger Sizes on application.

JOHN DEWRANCE AND CO.,

176, GREAT DOVER STREET, LONDON, S.E.

FIG. 97.



CLASS A.

FIG. 98.



CLASS B.

DAVIS'S PATENT LUBRICATOR,
FOR
CYLINDERS, PISTONS, AND SLIDE VALVES
OF STEAM ENGINES OF ALL KINDS.

MANUFACTURED SOLELY BY
JOHN DEWRANCE AND CO.

This Lubricator is perfectly self acting and extremely simple. It requires no trimming; and the only attention it requires is, when first put on the engine, to see that sufficient oil is drawn past the valve spindle when the steam is off. This can be adjusted most delicately by unscrewing the Lubricator from its connection, and reducing the diameter of the valve spindle by means of a little emery cloth. After it is once adjusted it requires no more attention—ordinarily, not even this is required.

THE OIL IS ONLY ADMITTED TO THE CYLINDERS WHEN THE STEAM IS OFF AND THE ENGINE IN MOTION, THAT BEING THE TIME WHEN IT IS MOST REQUIRED; but the oil so admitted is of course available for lubrication when steam is readmitted, mixing with the steam and lubricating in a most effectual manner cylinder, pistons, and valves.

If the filling valve is carefully closed, no oil can escape when the engine is standing, as it requires a vacuum to be formed behind the valve before the oil can be drawn past the spindle, and to overcome the vacuum in the reservoir above the level of the oil.

ADVANTAGES.

The advantages claimed for this Lubricator are :

- 1st. The greatest simplicity.
- 2nd. Requires no trimming.
- 3rd. Highly economical, as it can be most delicately adjusted to the quantity of oil required to be used.
- 4th. Is most effectual when most wanted.
- 5th. Can be easily taken to pieces and looked at.

PRICES.

- No. 1 Size, for Marine and Stationary Engines of over 100 N.H.P. . . . 60s. each.
No. 2 Size, for Locomotives, to hold half a pint 40s. „

NOTE.—When ordering, please state which Class of Lubricator is required.

Illustrated Sheet, showing methods of fixing, on application.

JOHN DEWRANCE AND CO.,
176, GREAT DOVER STREET, LONDON, S.E.

PATENT IMPROVED BOURDON STEAM, HYDRAULIC, AND VACUUM GAUGES.

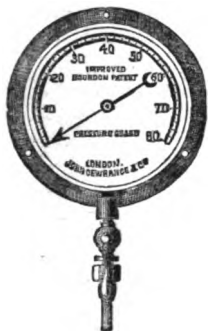


FIG. 5.

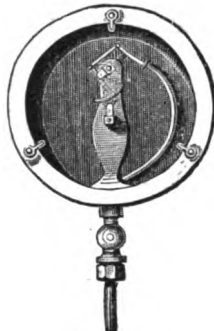


FIG. 4.

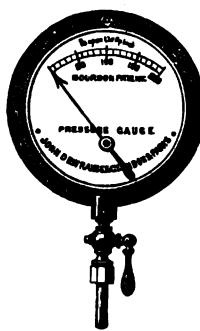


FIG. 3.

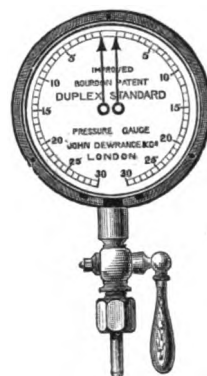


FIG. 6.

JOHN DEWRANCE AND CO., in offering their revised Price List of Steam Gauges, &c., &c., to their customers, would beg to refer them to the reputation these Gauges have made for their capability of sustained sensitiveness and accuracy, as well as for their good solid work and finish.

Every care has been taken to correct and remedy any defect or weak point in the Bourdon Gauge, and Messrs. JOHN DEWRANCE AND CO. can, after twenty-four years' experience in the sale of these Gauges, confidently recommend them.

The special qualities claimed for these Gauges are :

- 1st. Their accuracy.
- 2nd. They are not affected by frost.
- 3rd. Freedom from injurious vibration.
- 4th. Extreme simplicity.
- 5th. All the working parts are fastened to one bed plate, so that the Gauge is complete in itself, without being dependent upon the case for fixing. See Fig. 4.

These specialities have been secured under a Patent. Each Gauge is tested with a Column of Mercury, and is marked from the Mercury Column on its own dial, so as to ensure the greatest accuracy.

Every Gauge sent out from the Manufactory is guaranteed for two years ; if they fail within that time they will be put right without expense.

A large quantity of all kinds of Gauges kept in stock.

Orders can be executed at a day's notice.

Estimates given for keeping Gauges in proper order at a rate per annum.

Repairs of all kinds of Gauges.

Special Estimates for large quantities as usual.

FIG. 5. STEAM-PRESSURE GAUGE, in Polished Brass Case, with Central Hands.

Diameter	7"	6"	5"	4"	3"
Price	40/0	37/6	32/6	25/0	22/6

FIG. 3. STEAM-PRESSURE GAUGE, in Polished Brass Case, with Eccentric Hands.

Diameter	7"	6"	5"
Price	40/0	37/6	32/6

FIG. 6. DUPLEX STANDARD PRESSURE GAUGE, adopted as the Standard Testing Gauge by the Board of Trade (Marine Department) of the British Government.

Diameter	7"	6"
Price	60/0	57/6

Iron-Pipe Syphons, 1/6 each.

Connections for ditto, 1/0.

Gun-Metal Cocks, 3/6.

NOTE.—Fig. 4 shows J. D. and Co.'s anti-frost arrangement, with Tube half-way round ; this makes quite as good a Gauge as an all-round Tube, with the advantage of not allowing the water to remain in Tube.

The all-round Tube can be supplied at same prices by customers stating in their orders "all-round Tube."

JOHN DEWRANCE AND CO.,

176, GREAT DOVER STREET, LONDON, S.E.

IMPROVED GIFFARD INJECTORS.

MANUFACTURED BY J. DEWRANCE AND CO.

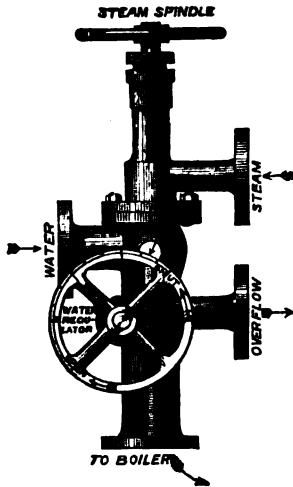


FIG. 29.

These Injectors possess many advantages over the ordinary Giffard Injector, both in construction and manipulation. Injectors, as boiler feeders, are greatly superior to any pump for the following reasons :

1st. The first cost is far less than any pump in the market.

2nd. They are entirely separate from the engine, being an adjunct to the boiler.

3rd. The steam used by the Injector is returned to the boiler with the feed water, thereby raising the temperature.

4th. This prevents the unequal expansion, so disastrous to boiler plates, caused by pumping in water at a low temperature.

5th. The feed water enters the boiler in a continuous stream, instead of the intermittent action caused by all pumps, and which action, particularly in high pressure, so soon destroys both valves and seatings.

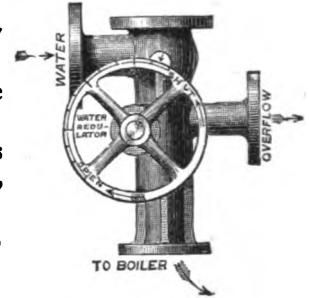


FIG. 30.

Fig. 29 illustrates an Injector arranged for lifting its supply water, as well as forcing water into a boiler, having an adjustment for the steam and also the water supply, the index for the latter being graduated in accordance with the pressure gauge.

Fig. 30 illustrates an Injector for forcing water only, the supply water in this case being above or on a level with the Injector. It has a water adjustment only, and is arranged to accommodate itself to any variation of pressure in the boiler to which it is attached.

Either of the foregoing class of Injectors is suitable for stationary, locomotive, or marine boilers, and will work with the supply water at a temperature of 130° Fahr.

Many thousands of those Improved Injectors are already in use.

GENERAL INSTRUCTIONS FOR WORKING THESE INJECTORS.

1st. Open the valves or cocks connecting the Injector with the boiler.

2nd. Open the water supply by means of the graduated hand-wheel, to the extent required for the steam pressure in the boiler.

3rd. Open the steam spindle (Fig. 29) or valve on steam pipe (Fig. 30) slightly, until water issues freely from the overflow pipe, then open up the steam spindle, or steam-valve cock to the full extent. If water continues to issue from the overflow pipe, regulate the water supply by means of the graduated hand-wheel.

4th. The nut at the back of the water-regulating wheel must be kept moderately tight (a suitable spanner for which is supplied), to prevent the possibility of the wheel being accidentally moved from its proper position.

JOHN DEWRANCE AND CO.,

176, GREAT DOVER STREET, LONDON, S.E.

TABLE GIVING THE PRICE, SIZE, AND HORSE-POWER OF GIFFARD INJECTORS.

No.	Size of Injector in Millimetres.	Internal diameter of Pipes in inches.	Fig. 29, entirely of Brass.		Fig. 29, with Brass Spindle, Nozzles, and Cast- Iron Case.		Fig. 30, entirely of Brass.		Fig. 30, with Brass Nozzles and Cast-Iron Case.		NOMINAL HORSE-POWER AT THE ABOVE PRESSURES.														
			£	s.	£	s.	£	s.	£	s.	10 lb.	20 lb.	30 lb.	40 lb.	50 lb.	60 lb.	70 lb.	80 lb.	90 lb.	100 lb.	110 lb.	120 lb.	130 lb.	140 lb.	150 lb.
2			3	15	..	..	2	15	..	..	2	3	4	5	5	6	6	7	7	8	8	8	9	9	9
3			4	0	..	..	3	0	..	..	5	7	9	11	12	14	15	16	17	18	18	19	20	21	21
4	1	1	5	15	4	10	3	18	3	5	10	14	17	20	22	24	26	28	30	31	33	34	36	37	39
5	1	1	6	5	4	15	4	10	3	10	15	22	27	31	35	38	41	44	47	49	52	54	56	58	60
6	1	1	8	15	6	10	6	0	4	5	22	32	39	45	50	55	59	64	67	71	75	78	81	84	87
7	1	1	9	5	7	10	6	15	4	10	34	43	53	61	68	75	82	87	92	97	102	106	111	115	119
8	1	1	12	0	8	15	8	5	6	0	40	56	69	80	89	98	106	113	120	127	133	139	145	150	155
9	1	1	13	0	9	15	9	5	7	0	50	72	88	101	113	124	134	144	152	161	168	176	183	190	197
10	2	2	15	0	11	15	10	10	8	5	62	88	108	125	152	154	166	177	193	195	208	217	229	235	243
11	2	2	16	0	12	15	11	10	9	5	76	107	131	152	170	186	201	215	228	240	252	263	274	284	294
12	2	2	19	0	13	15	12	15	10	10	90	128	156	183	206	221	239	256	271	286	300	313	326	338	350

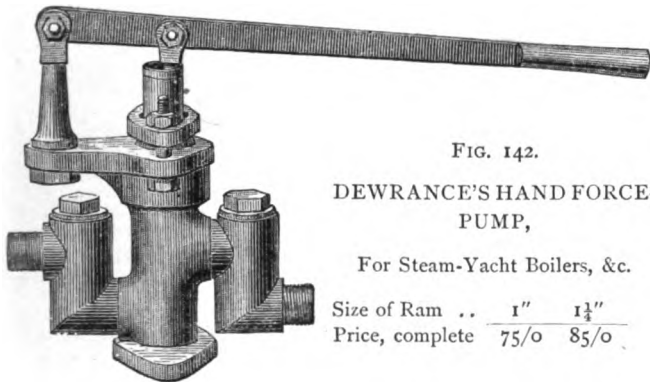


FIG. 142.

DEWRANCE'S HAND FORCE-
PUMP,

For Steam-Yacht Boilers, &c.

Size of Ram .. 1" 1 1/4"
Price, complete 75/0 85/0

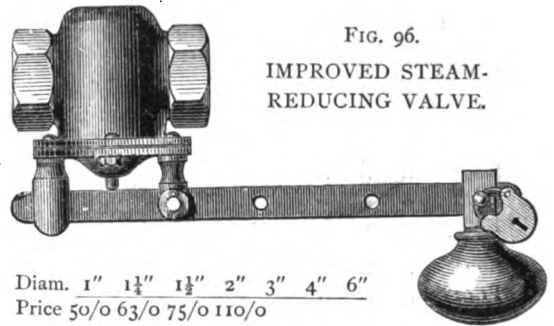


FIG. 96.

IMPROVED STEAM-
REDUCING VALVE.

Diam. 1" 1 1/4" 1 1/2" 2" 3" 4" 6"
Price 50/0 63/0 75/0 110/0

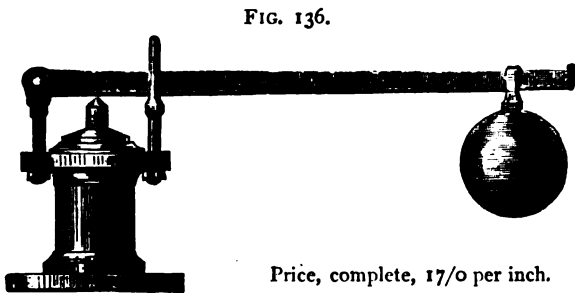


FIG. 136.

Price, complete, 17/0 per inch.

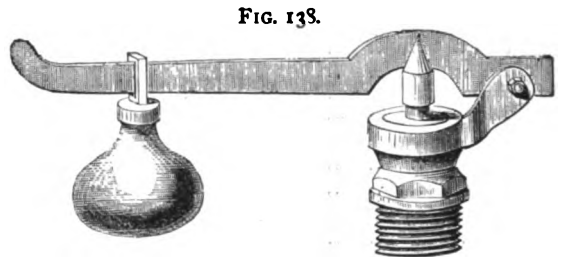


FIG. 138.

Diameter .. 1" 1 1/4" 1 1/2" 2"
Price .. 12/9 15/6 19/0 27/6

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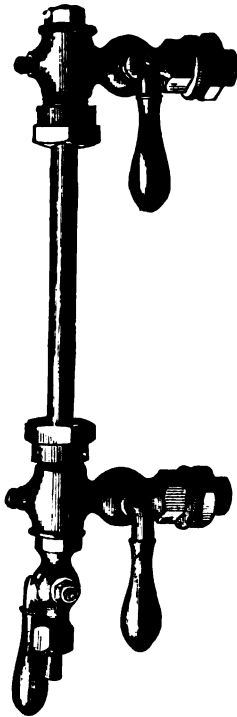


FIG. 42.

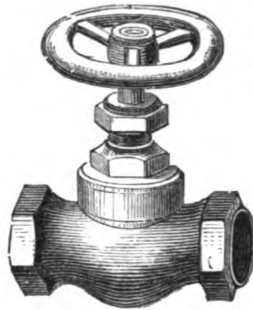


FIG. 57.

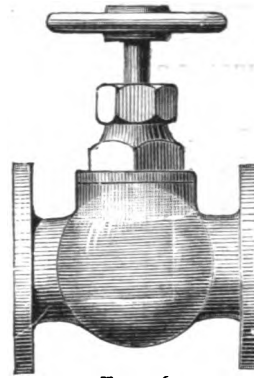


FIG. 56.



FIG. 49.

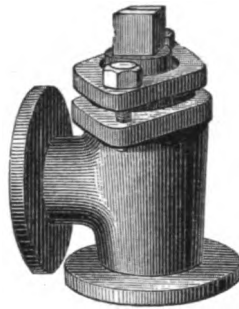


FIG. 62.

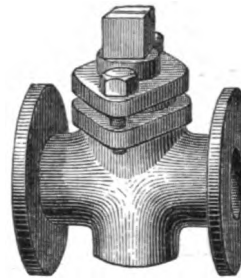


FIG. 67.

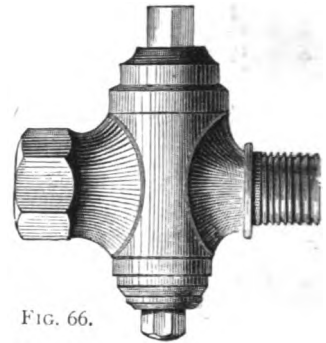


FIG. 66.

PRICES.

FIG. 42. STRONG GUN-METAL WATER GAUGE, ROUND BODY, EBONY OR METAL HANDLES.

Size	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{1}{2}$ "	1"
Price	23/6	26/6	32/0	34/0	

FIG. 57. STRONG GUN-METAL STOP VALVE, ENDS SCREWED TO IRON PIPE, LEATHER OR METAL VALVES, AS ORDERED.

Size	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	2"
Price	5/3	7/6	10/8	13/9	17/3	29/6

Best quality.

FIG. 56. STRONG GUN-METAL STOP VALVE, WITH FLANGES.

Size	1"	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	3"
Price	17/0	24/0	36/0	41/6	43/6	60/6

SAME PATTERN, WITH ONE SCREWED END AND ONE FLANGE, SAME PRICES.

THE SAME PATTERN IN CAST IRON, WITH GUN-METAL VALVE, SEAT, SPINDLE, AND NUT.

Size	2"	2 $\frac{1}{2}$ "	3"	3 $\frac{1}{2}$ "	4"	5"	6"	8"	9"	10 $\frac{1}{2}$ "	12"
Price	30/0	38/0	46/0	57/6	77/6	92/6	110/0	160/0	190/0	244/0	320/0
Diam. of Flanges ..	6 $\frac{1}{2}$ "	7"	7 $\frac{1}{2}$ "	8"	9"	10"	12"	14"	15 $\frac{1}{2}$ "	17"	19"
Length over ditto ..	8"	9"	10"	11"	12"	14"	17"	18 $\frac{1}{2}$ "	20"	22"	25"

FIG. 49. GUN-METAL STEAM WHISTLE, EBONY OR METAL HANDLES.

Diam.	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"	3 $\frac{1}{2}$ "	4"	5"	6"
Price	8/9	10/6	11/6	14/0	16/6	18/0	30/0	35/0	50/0	65/0

FIG. 62. STRONG GUN-METAL DOWN-WAY GLAND BLOW-OFF COCK, WITH FLANGES.

Size	1"	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"
Price	18/0	26/0	33/0	53/0	78/0	130/0

FIG. 67. GUN-METAL GLAND STEAM COCK, WITH FLANGES.

Size	1"	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"	3 $\frac{1}{2}$ "
Price	14/0	23/0	30/9	49/0	72/0	120/0	160/0

FIG. 66. GUN-METAL STEAM COCK, LONDON PATTERN.

Size	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	1 $\frac{1}{2}$ "	2"
Price	3/0	3/6	4/0	6/0	9/6	16/6	22/6
Rough Polished ..	3/6	4/0	5/0	7/3	11/0	18/6	26/0
							33/0
							38/0

JOHN DEWRANCE AND CO.,
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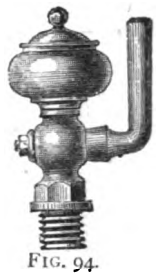


FIG. 94.



FIG. 95.

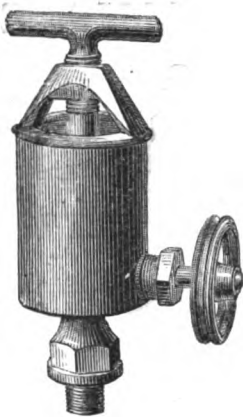


FIG. 100.

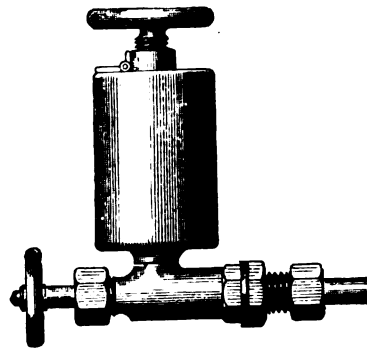


FIG. 102.



FIG. 115.

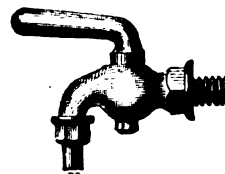


FIG. 110.

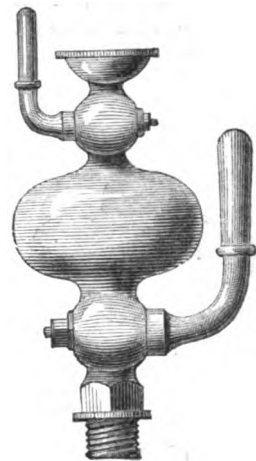


FIG. 104.

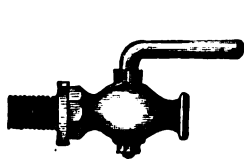


FIG. 109.

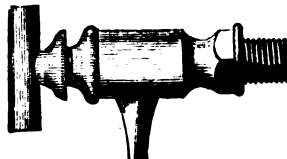


FIG. 114.

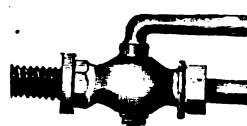


FIG. 116.



FIG. 118.

FIG. 94. GUN-METAL GREASE COCK.

Size	2"	3"
Price	10/0	13/3

FIG. 95. CYLINDER GREASE COCK.

Size, screwed to 1" pipe	17/6
" " 1/2" "	11/6

This is also made without Nose at bottom.

FIG. 100. J. DEWRANCE AND CO.'S IMPROVED DOUBLE VALVE LUBRICATOR.

This pattern is strongly recommended as a substitute for the ordinary Double Tallow Cock, which is so frequently a source of trouble and annoyance to Engineers through leakage.

Size, to hold 1 pint, screwed to 1" pipe, 30/0. To hold 1/2 pint, screwed to 3/4" pipe, 23/6.

FIG. 102. DOUBLE VALVE LUBRICATOR, WITH ELBOW.

To hold 1 pint, 34/0. To hold 1/2 pint, 27/6.

FIG. 104. GUN-METAL DOUBLE TALLOW COCK.

Size	1 1/2"	1 3/4"	2"	2 1/2"	3"	3 1/2"	4"
Price	9/3	10/0	11/9	14/0	19/6	23/6	26/0

FIG. 109. GUN-METAL PET COCK.

Size	1/4"	3/8"	1/2"	5/8"	3/4"
Price	2/6	3/0	4/0	—	—

FIG. 110. GUN-METAL COCK, WITH UNION JOINT.

Price	—	5/9	6/6	—	—
---------------	---	-----	-----	---	---

FIG. 114. GUN-METAL SCREW VALVE GAUGE COCK.

Price	—	—	7/0	—	8/6
---------------	---	---	-----	---	-----

FIG. 115. GUN-METAL PET COCK:

Price	2/9	3/6	4/6	5/9	7/0
---------------	-----	-----	-----	-----	-----

FIG. 116. GUN-METAL PET COCK, WITH UNION.

Price	4/6	5/0	5/9	—	8/6
---------------	-----	-----	-----	---	-----

FIG. 118. GUN-METAL PET COCK, WITH CLEANING SCREW.

Price	—	—	5/0	—	8/0
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CHECK VALVES, OIL SYPHONS, ETC.

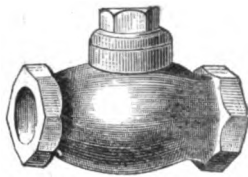


FIG. 71.

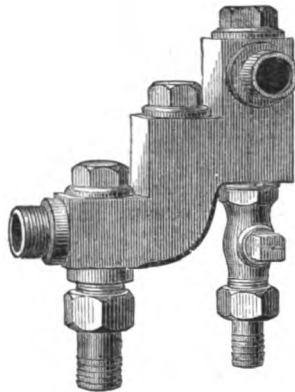


FIG. 73.



FIG. 78.



FIG. 139.



FIG. 139A.

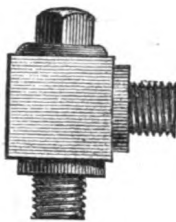


FIG. 72.

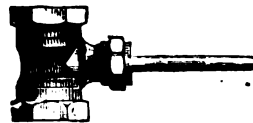


FIG. 91.

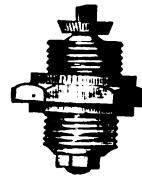


FIG. 74.

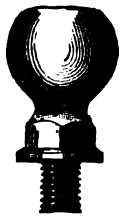


FIG. 121.



FIG. 122.



FIG. 126.



FIG. 88.

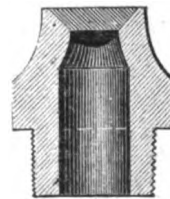


FIG. 147.

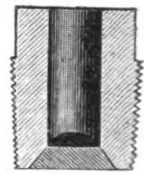


FIG. 148.

Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
Price	4/9	6/9	9/6	12/6	15/0	27/0		
FIG. 71.								
Price	5/6	7/0	9/3	13/0	17/6	28/0		
FIG. 72.								
Price	—	4/6	5/6	6/6	10/0	16/0		
FIG. 74.								
FIG. 73. GUN-METAL TREBLE CHECK VALVE FOR PORTABLE ENGINES.								
FIG. 78. GUN-METAL PRIMING VALVE FOR STEAM-ENGINE CYLINDERS.								
		Screwed to 1 1/2" pipe,	2" pipe,					
FIG. 91. THROTTLE VALVE.								
Size	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
Price	—	—	8/3	11/0	13/6	17/0	25/0	—
FIG. 88. UNION JOINT.								
Price	2/9	3/6	4/6	5/9	8/3	11/0	16/0	
FIG. 121. OIL SYPHON					21/0	24/0	29/0	38/0
FIG. 122. " " WITH SPRING VALVE					32/0	36/0	42/0	50/0 per doz.
FIG. 126. " "					24/0	27/0	33/0	44/0
FIG. 147. FUSIBLE PLUG FOR STEAM BOILERS					6/0	6/9	7/6	10/0
FIG. 148. " "					5/0	6/0	7/6	10/0
FIGS. 139 AND 139A. SALTER'S SPRING BALANCES. 100 lb. 4" RANGE, 12/0.								

JOHN DEWRANCE AND CO.,

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WATER METERS.

FIG. 157.

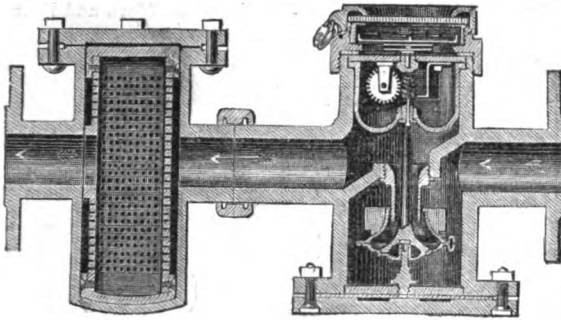


Fig. 157 is a Section of Water Meter and Dirt Box, showing all working parts.

FIG. 158.

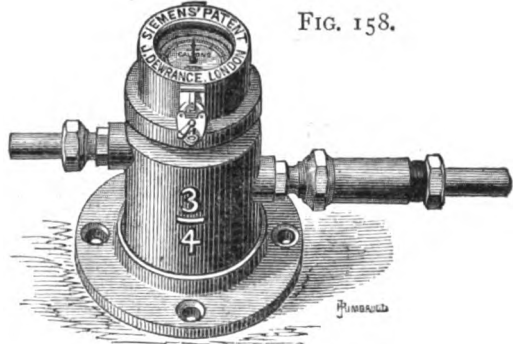


Fig. 158 is a Front Elevation of Water Meter and Brass Filter, screwed for iron pipe or tinned for lead pipe.

J. DEWRANCE AND CO. have made a speciality of these Meters, and in order to ensure their perfect accuracy and working have taken every precaution that all Meters shall be accurately tested before leaving the Works. Every Meter is numbered, and the date and results of the test filed for future reference.

Any Meter varying more than 1 per cent. from the standard measure is adjusted.

All Meters are guaranteed to be not more than 5 per cent. between their maximum and minimum measurements. A record is kept of the final tests of all Meters, copies of which can be had on application.

J. D. and Co. also undertake to keep in permanent repair or renew their Meters at the rate of 5 per cent. per annum upon the first cost, which is generally found to be in excess of the price paid for repairs as they occur.

TABLE OF PRICES.

Numbers.	Gallons delivered per hour, at an effective pressure of 50 feet.	Gallons delivered per hour at an effective pressure of 150 feet.	Diameter of inlet and outlet.	Prices each with brass filters and unions tinned for lead pipes.	Price each with flanged ends for connecting to iron pipe, and with dirt box attached, fitted with copper strainer.	Price each without dirt boxes (but we strongly recommend the Meters to be always used with dirt boxes, they last longer and work better).	Extras—if ordered.			
							Dial Protector.	Street Meter Case.	Spigot and Socket.	Annual guarantee charge to keep Meters in order.
				£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1	150	250	1 1/2 inch	2 18 0	..	..	0 2 0	1 6 0	..	0 4 0
2	300	500	2 inch	3 8 0	..	..	0 2 0	1 6 0	..	0 5 4
3	600	1,000	2 1/2 inch	4 8 0	..	..	0 2 0	1 6 0	..	0 6 8
4	1,500	2,500	3 inch	5 3 0	5 14 0	5 3 0	0 3 4	1 6 0	0 7 6	0 8 0
5	2,200	3,800	3 1/2 inch	6 10 0	7 3 0	6 10 0	0 3 4	1 6 0	0 7 6	0 10 8
6	3,000	5,000	4 inch	7 14 0	8 9 0	7 14 0	0 3 4	1 6 0	0 7 6	0 12 0
7	4,000	7,000	4 1/2 inch	..	10 16 0	9 6 0	0 4 0	1 18 0	0 9 0	0 16 0
7 1/2	6,000	10,000	5 inch	..	13 9 0	11 14 0	0 4 0	1 18 0	0 11 0	1 0 0
8	8,300	14,000	5 1/2 inch	..	16 0 0	14 0 0	0 4 0	1 18 0	0 13 0	1 4 0
9	13,400	20,000	6 inch	..	21 7 0	18 14 0	0 4 0	1 18 0	0 16 0	1 10 8
10	18,500	32,000	6 1/2 inch	..	26 6 0	23 8 0	0 4 0	2 16 0	1 0 0	2 0 0
11	27,000	46,000	7 inch	..	32 4 0	28 0 0	0 6 8	2 16 0	1 4 0	2 7 0
12	45,000	77,000	8 inch	..	49 10 0	42 0 0	0 6 8	4 0 0	1 10 0	3 7 0
13	70,000	120,000	10 inch	..	66 0 0	56 0 0	0 6 8	..	2 10 0	4 10 0
14	90,000	154,000	12 inch	..	87 13 0	74 13 0	0 6 8	..	3 5 0	6 0 0

Damage having been done to Meters by concussion, in consequence of cocks being used which can be shut off instantly, we strongly recommend that none but Screw Valves be used from the Meter, of which a variety can be seen on illustrated sheet.

To prevent damage to Meters in stock, always keep them above freezing point.

Full instructions for fixing sent on application.

Meters made with Foreign Divisions of Measurement.

JOHN DEWRANCE AND CO.,

176, GREAT DOVER STREET, LONDON, S.E.

IMPROVED DOUBLE-FACED SLUICE VALVES,

WITH FLANGED OR SOCKET ENDS.

These Valves are made on the most approved principle, and are fitted with strong Gun-Metal Screws, Nuts, and Four Valve Faces, and tested with a pressure of 200 lb. on the square inch before leaving the Works.

PRICES.

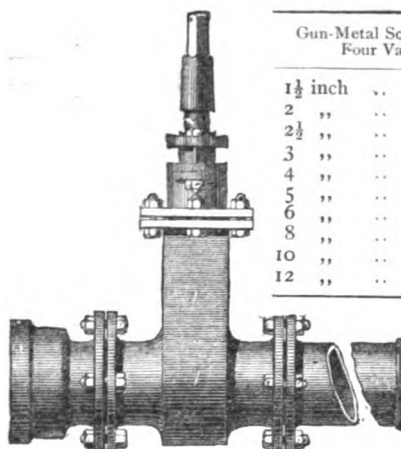


FIG. 160.

Gun-Metal Screws, Nuts, and Four Valve Faces					Wrought-Iron Screws, Gun-Metal Nuts, and Two Valve Faces.				
1½ inch	..	..	£1	17 6	1½ inch	..	..	£1	15 0
2 "	..	..	2	13 6	2 "	..	..	2	7 6
2½ "	..	..	3	2 6	2½ "	..	..	2	15 0
3 "	..	..	3	9 0	3 "	..	..	3	3 0
4 "	..	..	4	17 6	4 "	..	..	4	5 0
5 "	..	..	6	5 0	5 "	..	..	5	7 6
6 "	..	..	7	12 6	6 "	..	..	6	12 6
8 "	..	..	10	0 0	8 "	..	..	8	10 0
10 "	..	..	12	5 0	10 "	..	..	10	10 0
12 "	..	..	16	0 0	12 "	..	..	14	0 0

Fig. 161, with Socket Ends, same Price as Fig. 160.

Spigot and Socket Ends for Bolting to Flanges, Fig. 160.

2" 2½" 3" 4" 5" 6"

Price, 9s. 11s. 13s. 16s. 20s. 24s. per pair.

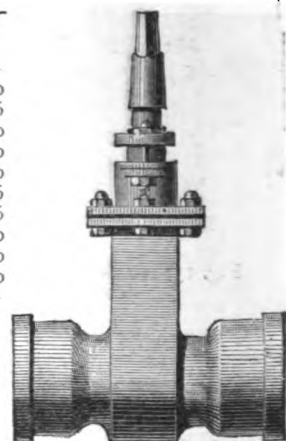


FIG. 161.



FIG. 162.

FIG. 162.

IMPROVED STAND-PIPE
FOR BALL HYDRANTS,

With Copper Pipe, Gun-Metal Single-Swivel Elbow, Hose Union, Bayonet Joint, Valve Rod, and Screw.

Price, 2 in. 80s.; 2½ in. 90s.

Extra length, per foot, 5s.

The same, with Double-Swivel Elbow, 2 in. 90s.; 2½ in. 100s.

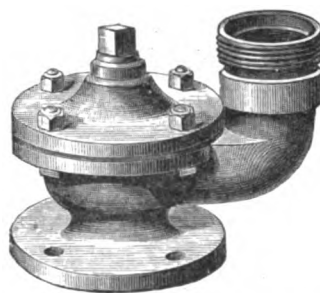


FIG. 163.
CAST-IRON BALL HYDRANT,
With Rubber Ball.

Price, 2 in. 16s.; 2½ in. 20s.

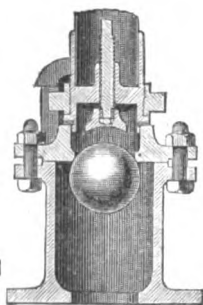


FIG. 164.

FIG. 167.

HIGH-PRESSURE
HYDRANT,

With Gun-Metal Working Parts.

Price, with Cover for Footway,

1½ in. 25s.; 2 in. 30s.;
2½ in. 36s.

Without Cover,

1½ in. 18s.;
2 in. 22s. 6d.;
2½ in. 26s.

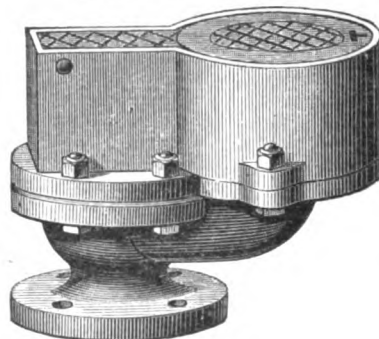


FIG. 167.

FIG. 165. COPPER STAND-PIPE,
With Single-Swivel Elbow and Screw Cap,
complete.

Price, 2 in. 60s.; 2½ in. 67s. 6d.

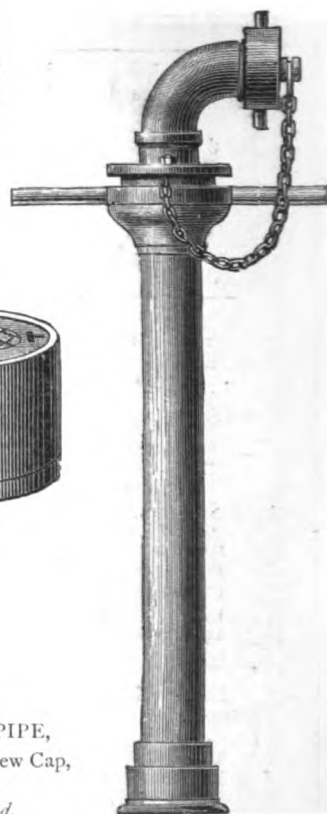


FIG. 165.

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176, GREAT DOVER STREET, LONDON. S.E.



FIG. 170.



FIG. 168.

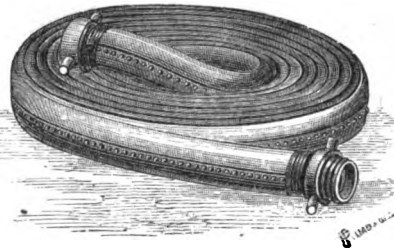


FIG. 173.

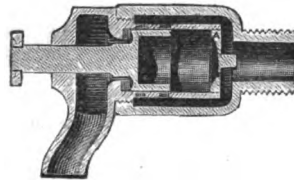


FIG. 185.

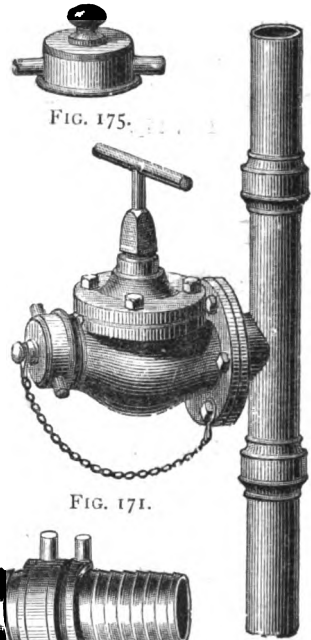


FIG. 171.



FIG. 178.

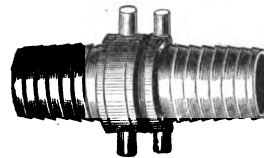


FIG. 174.

FIG. 170. CAST-IRON WATER POST, WITH IMPROVED SELF-CLOSING VALVE.

Price, complete, 120/0; without Self-Closing Valve, 105/0.

FIG. 168. COPPER BRANCH PIPE, WITH GUN-METAL CONNECTIONS.

Size (Hose Pipe)	1½"	1¾"	2"	2½"	3"
Price, Long	17/6	21/0	22/0	23/0	28/0
„ Short	14/6	16/0	18/0	20/6	23/0

FIG. 173. LEATHER DELIVERY HOSE PIPE, COPPER RIVETTED.

Size	1½"	1¾"	2"	2½"	3"	3½"	4"	5"	6"
Price, per foot	2/5	2/7	3/0	3/3	3/6	3/9	4/3	4/9	5/5

FIG. 185. J. DEWRANCE AND CO.'S IMPROVED SELF-CLOSING VALVE.

This Valve is made upon an entirely new principle, and effectually prevents the usual concussion so damaging to the pipes.
Price, ½", 5/9; ¾", 8/0.

FIG. 178. EQUILIBRIUM BALL-VALVE, WITH COPPER BALL, complete.

Size	¾"	1"	1½"	2"	2½"	3"	4"
Price, Plain Shank ..	2/9	3/3	4/4	8/6	13/6	20/0	40/0
„ Screwed for Iron ..	3/0	3/6	4/8	9/3	14/6	21/6	43/6
„ Screw Boss	3/3	3/9	5/2	10/0	15/6	23/0	47/0

FIG. 174. GUN-METAL UNION JOINT FOR HOSE PIPES.

Size (inside diameter) ..	1½"	1¾"	2"	2½"	3"	3½"	4"
Price, Strong	5/6	6/9	8/0	9/6	11/6	14/0	25/0
„ Light	5/0	6/3	7/3	8/6	10/6	12/9	21/0

The 2½" is screwed to the London Fire Brigade Gauge.

FIG. 171. CAST-IRON FIRE VALVE, FITTED WITH RUBBER DIAPHRAGM AND GUN-METAL WORKING PARTS.

Price, 2", 29/0; 2½", 32/6. T Spanners, 5/0.

FIG. 175. BLANK CAPS FOR HOSE UNION.

Size	1½"	1¾"	2"	2½"	3"
Price	2/6	3/0	3/9	4/4	5/0

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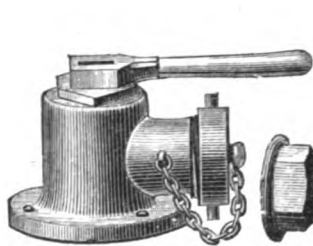


FIG. 169.

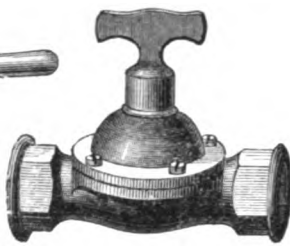


FIG. 186.



FIG. 187.

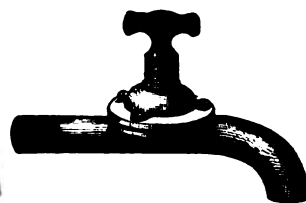


FIG. 188.

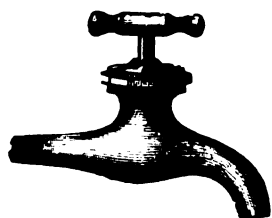


FIG. 191.

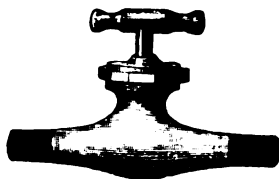


FIG. 192.



FIG. 189.

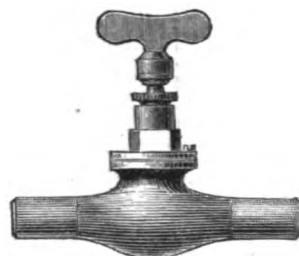


FIG. 190.

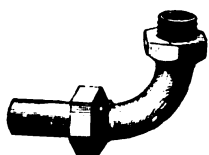


FIG. 179.



FIG. 180.

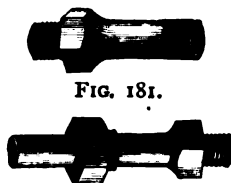


FIG. 181.



FIG. 182.



FIG. 183.



FIG. 184.

FIG. 169. GUN-METAL FIRE COCK, GOVERNMENT PATTERN, WITH LEVER, CAP, AND CHAIN.					
Size	2"	2½"			
Price	55/6	82/6			

FIG. 186. STRONG HIGH-PRESSURE DIAPHRAGM VALVE, SCREWED FOR IRON PIPE.					
Size	½"	¾"	1"	1½"	2"
Price (Male ends if required) ..	4/9	6/6	11/0	18/6	25/0

FIGS. 187 AND 188. HIGH-PRESSURE DIAPHRAGM VALVES.				
Size	¾"	1"	1½"	2"
Price (Screw Boss Bib)	3/0	3/6	5/3	8/3
„ (Screw Shank Bib)	2/9	3/3	4/9	7/9
„ (Plain Shank Bib)	2/6	3/0	4/6	6/9

FIG. 189. HIGH-PRESSURE BIB VALVE.				
Size	¾"	1"	1½"	2"
Plain Shank (Polished) ..	2/2	2/10	4/6	7/0
Screwed „ ..	2/4	3/2	4/11	7/6
Screw Boss ..	2/9	3/5	5/6	8/5
Plain Shank (Rough) ..	1/11	2/6	4/0	6/4
Screwed „ ..	2/1	2/10	4/5	6/10
Screw Boss ..	2/6	3/1	5/0	7/9

FIG. 191.				
Plain Shank (Polished) ..	2/10	3/4	4/8	8/2
Screwed „ ..	3/2	3/8	5/3	9/0
Screw Boss ..	3/4	4/0	5/10	10/0
Plain Shank (Rough) ..	2/10	3/2	4/7	8/2
Screwed „ ..	3/0	3/4	4/9	8/4
Screw Boss ..	3/2	4/3	5/8	9/5

FIG. 179.				
Size	½"	¾"	1"	1½"
Price	1/6	1/9	2/9	3/10
FIG. 180.				
Size	0/10	0/11	1/1	2/2
Price	0/9	0/10	1/0	1/9
FIG. 181.				
Size	1/6	1/8	2/8	3/9
Price	1/6	1/8	2/8	3/9

FIG. 190. HIGH-PRESSURE STOP VALVE.				
Size	¾"	1"	1½"	2"
Plain Shank (Polished) ..	2/2	2/10	4/6	7/0
Screwed one end ..	2/5	3/2	5/0	7/8
„ both ends ..	2/8	3/5	5/4	8/2
Plain Shank (Rough) ..	1/11	2/6	4/0	6/4
Screwed one end ..	2/2	2/10	4/6	7/0
Screwed both ends ..	2/5	3/1	4/10	7/6

FIG. 192.				
Plain Shank (Polished) ..	2/10	3/4	4/8	8/2
Screw „ ..	3/2	3/8	5/3	9/0
Plain „ (Rough) ..	2/8	3/2	4/7	8/2
Screwed ends ..	3/0	3/4	4/9	8/4

FIG. 183. STRONG UNION JOINTS FOR LEAD PIPES.				
Size	¾"	1"	1½"	2"
Price	1/1	1/4	2/1	2/7

FIG. 184. (Screwed to Iron Pipe.)				
Size	¾"	1"	1½"	2"
Price	1/6	1/10	2/3	3/0

JOHN DEWRANCE AND CO.,
176, GREAT DOVER STREET, LONDON, S.E.

BULL'S PATENT HAND DREDGER.

EXTENSIVELY USED BY THE INDIAN GOVERNMENT.

PRICES.

SUITABLE FOR DREDGING.

To hold $2\frac{1}{2}$ cubic feet	£	s.
	12	12
" 4 "	15	15
" 6 "	17	17

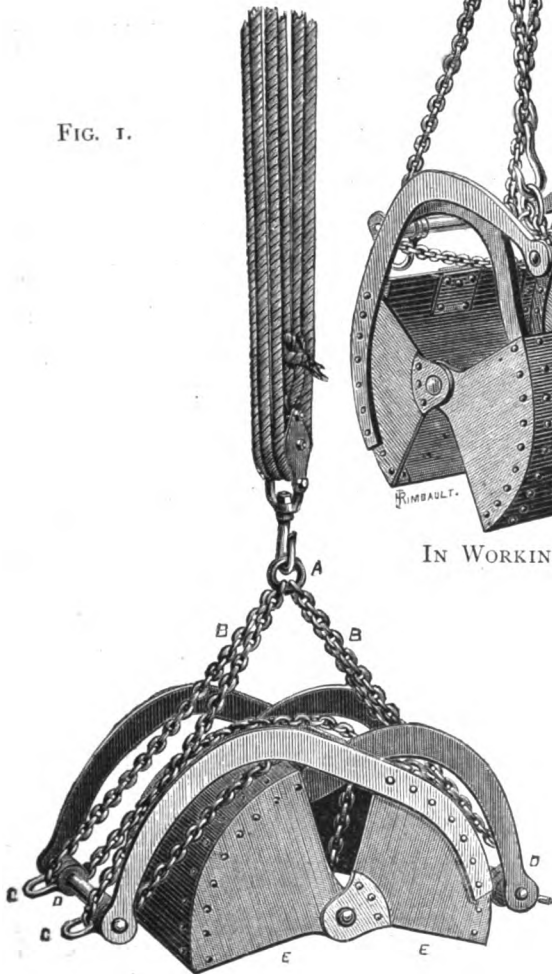
Special Estimates for Larger Sizes.

PRICES.

SUITABLE FOR UNLOADING GRAIN, &C.

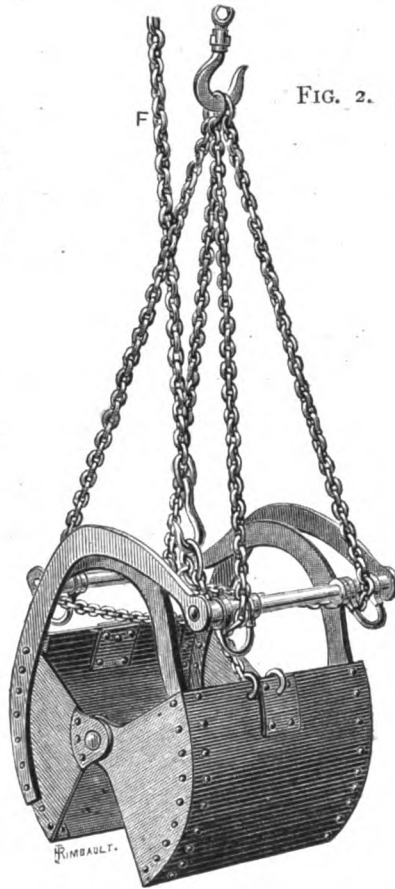
To hold 2 bushels ..	£	s.
	12	0
" 4 "	15	0
" 8 "	17	1
" 12 "	22	10

FIG. 1.



IN POSITION TO BE LOWERED.

FIG. 2.



IN WORKING POSITION.

FIG. 3.



POSITION AFTER COMPLETING ITS OPERATION, AND FULL OF EXCAVATED MATERIAL.

SOLE MANUFACTURERS AND AGENTS:

JOHN DEWRANCE AND CO.,

176, GREAT DOVER STREET, LONDON, S.E.

BULL'S PATENT HAND DREDGER.

The advantages of the "Dredger" are:

- 1st. The principle upon which it works is so simple, that any ordinary labourer can use it with very little practice, while a sand pump requires an engineer.
- 2nd. Its construction is so plain that it cannot easily get out of order.
- 3rd. It is quickly rigged up or taken down, a quarter of an hour being ample time for either purpose.
- 4th. It is admirably adapted for dock clearing and for the removal of mud or sand wherever it accumulates at rivers' mouths; also for unloading grain from the holds of ships, filling granaries, &c.
- 5th. It can be worked at any reasonable depth.
- 6th. It works cheaper and more expeditiously than the sand pump.

The Dredger has been at work for some time in India, and has almost entirely superseded the sand pump, and its utility can be seen from the following extract from the Report of Guildford L. Molesworth, Esq., Consulting Engineer to the Government of India for State Railways; also published in the Supplement to the 'Gazette of India,' September 16th, 1872, as follows: "On the Ravee and Chenab the well sinking has been very successful, a large number of piers having been sunk 60 and 70 feet below low-water level during past cold season. The wells have been sunk chiefly by the use of 'Bull's Dredger,' which appears to have superseded the sand pump."

George Woodbridge, Esq., M.I.C.E., Officiating Engineer of the Oude and Rohilkund Railway, Lucknow, in 'Professional Papers on Indian Engineering,' No. 26, shows the comparative work done by one of "Bull's Dredgers" and a sand pump:

"The average of sinking by the Dredger of 14½ days' work was 1·27 feet per day for a 14-foot diameter well, between the depths of 23 feet and 42 feet below water level."

The average by a sand pump, worked by a crab, was only 1·70 of a foot; and further as to the comparative cost of the two machines, the results are:

	s.	d.
"Bull's Dredger" cost per foot sinking in India	7	7
A 2-feet Sand Pump	13	5½

thus showing a very large reduction in the cost per foot, equal to 43½ per cent., besides an increased rate of progress.

JOHN DEWRANCE AND CO.,

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DOWNTON'S PATENT SHIP'S PUMP.

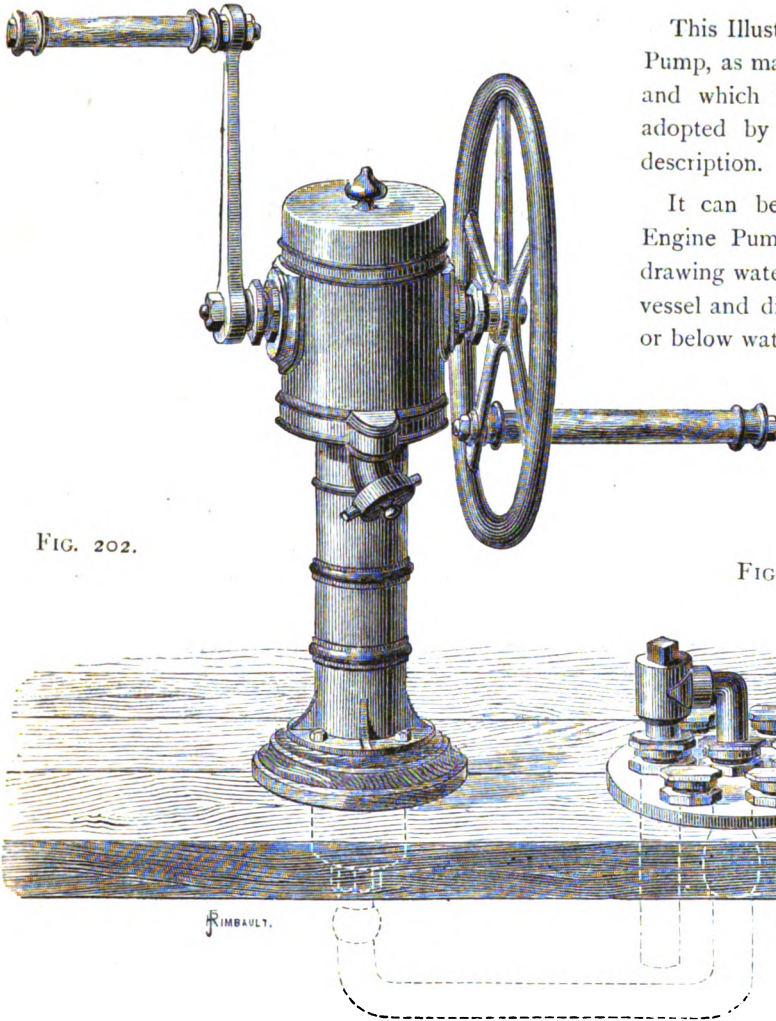


FIG. 202.

FIG. 2C 2A.

This Illustration represents a Downton Pump, as manufactured by J. D. and Co., and which has been more extensively adopted by shipowners than any other description.

It can be used as a Bilge and Fire Engine Pump; also for washing decks, drawing water from different parts of the vessel and discharging same, either above or below water line.

This pump is very ornamental in appearance, and occupies no more space, although equal in power to three ordinary pumps, it having three distinct buckets working in one barrel, and upon repeated trials has proved far superior to all others.

Estimates given for fixing.

DESCRIPTION: *Polished Gun-Metal Barrel, Head, Cap, Stuffing Boxes, Discharge Nozzle and Buckets, Wrought-Iron Three-Throw Crank and Bucket Rods, Cast-Iron Fly Wheel, Polished Elm Handles and Tail Pipe.*

Size, inside diameter of Barrel	4½"	5"	6"	7"	8"
Price	450/0	530/0	710/0	800/0	—

For larger sizes up to 12 inches diameter, prices on application.

If fitted with valve box in bottom of barrel to draw from one place only, extra :

Size	4½"	5"	6"	7"	8"
Price	34/0	34/0	41/0	48/6	—

JOHN DEWRANCE AND CO.,

176, GREAT DOVER STREET, LONDON, S.E.

DOWNTON'S PUMP FITTINGS.

FIG. 202A.—GUN-METAL DECK PLATE,

With goose neck (in which is fitted the suction valve of pump) and connections to draw from SIX different places in the vessel.

Size for diameter of pump ..	4½"	5"	6"	7"	8"
Price	118/0	190/0	190/0	190/0	—
Gun-Metal Deck Plates as foregoing to draw from THREE different places in the vessel.					
Size	4½"	5"	6"	7"	8"
Price	95/0	135/0	135/0	135/0	—

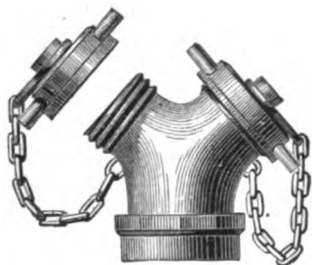


FIG. B.

**GUN-METAL
BREECH PIECE,**
For connecting two Hose
Pipes in case of fire, &c.
Price 25/6.

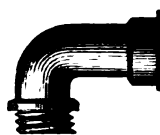


FIG. C.

GUN-METAL ELBOW,
For Engine Branch Pipe.
Price 4/6.



FIG. E. TANK PIPE AND ELBOW. Price 16/0.

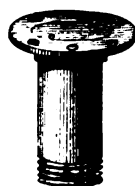


FIG. D.

GUN-METAL CUP SCREW,
To be screwed down on upper
deck when pump is fixed below.
Price 11/0.



FIG. G.

GUN-METAL SPREADER,
To be screwed on end of Branch
Pipe.
Price 3/6.

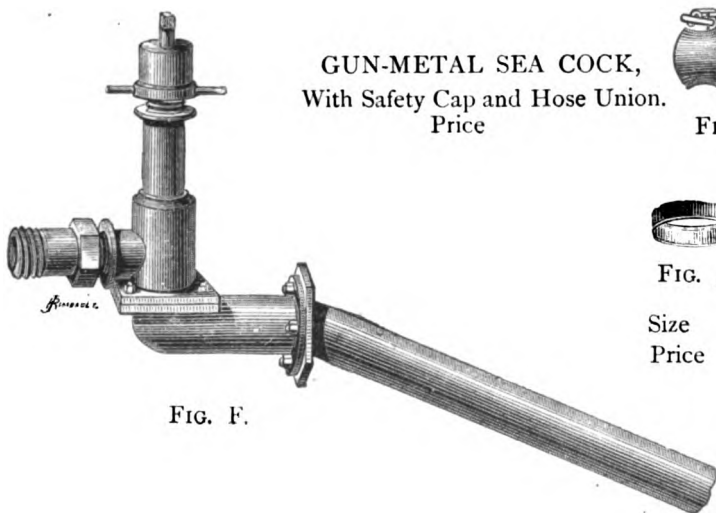


FIG. F.

GUN-METAL SEA COCK,
With Safety Cap and Hose Union.
Price

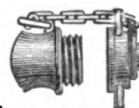


FIG. H.

**GUN-METAL BRANCH
SCREW AND CAP,**
For attaching Hose Pipe
to Delivery Main between
decks.
Price 5/0.



FIG. J.

CAP LEATHERS,
FOR PUMP BUCKETS.

Size	4½"	5"	6"	7"	8"
Price	2/3	2/10	3/8	4/10	—

JOHN DEWRANCE AND CO.,

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DOWNTON'S PUMP FITTINGS.

CAST-IRON BILGE STRAINER,
To which is bolted the Bilge Suction Pipe.
Price according to size and shape.

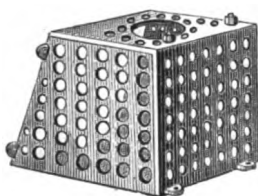


FIG. 202 K.

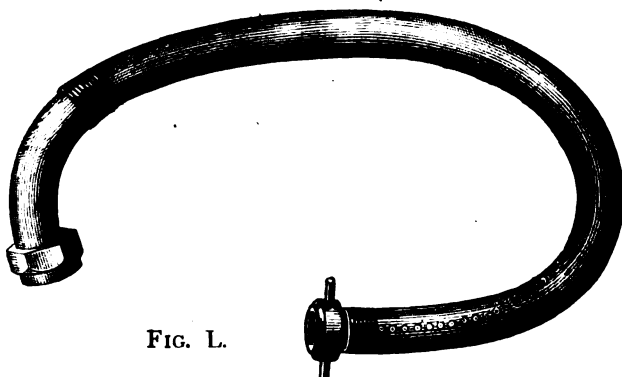
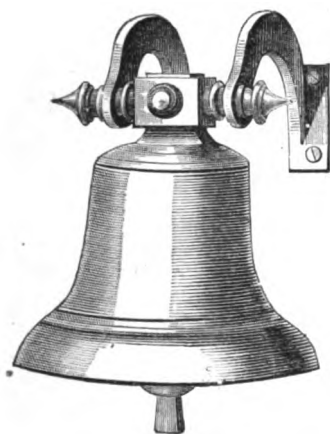


FIG. L.

COPPER RIVETTED DALE HOSE.

This hose pipe is used for a variety of purposes—it is the discharge pipe from the pump through which water can be delivered either above the water line or below through the sea cock, it is also used for clearing the bilge suction pipe if it should become choked, washing the decks, wetting the sails, or for syphoning water from sea cock through the pump to the lower part of vessel.

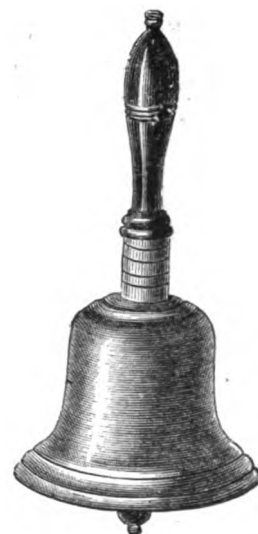
Size of Pump	.. .. .	4½"	5"	6"	7"
Price per foot, including Union	..	3/0	3/0	3/3	3/3



POLISHED SHIP'S BELL,
Mounted on Gun-Metal
Brackets.
Price @ per lb.



POLISHED SHIP'S BELL,
Mounted in Gun-Metal Frame and
Stand.
Price @ per lb.



HAND BELLS.
Price @ per lb. Polished.
" " " Rough.

JOHN DEWRANCE AND CO.,

176, GREAT DOVER STREET, LONDON, S.E.

3 A 2

BELLS AND FITTINGS.

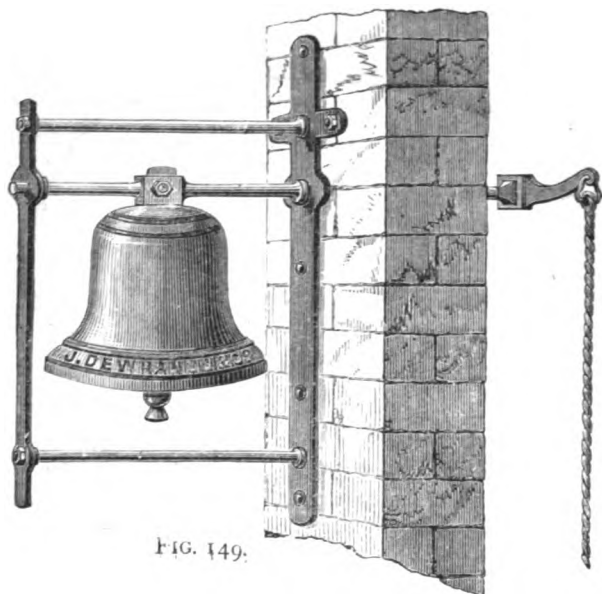


FIG. 149.



FIG. 150.

FIG. 149. YARD, FACTORY, OR FIRE BELL, MOUNTED IN WROUGHT-IRON FRAME, WITH SPINDLE PASSING THROUGH THE WALL. When ordering, please state thickness of wall.

Diameter of Bell	6"	8"	9"	10"	11"	12"	13"	14"
Price	40/0	58/0	68/0	82/6	110/0	132/0	168/0	195/0

FIG. 150. YARD, FACTORY, OR FIRE BELL, MOUNTED IN WROUGHT-IRON BRACKET.

Diameter of Bell	6"	8"	9"	10"	11"	12"	13"	14"
Price	39/0	55/0	64/0	79/0	104/0	125/0	162/0	180/0

Bells of all sizes made to order.

FIG. 47.

J. DEWRANCE AND CO'S.

IMPROVED GUN-METAL STEAM FOG-SIGNAL, WITH
ENCLOSED VALVE, FOR STEAM-SHIPS,
COAST STATIONS, &c.

Diameter of Bell	6"	8"	10"	12"
Price	88/0	122/0	250/0	315/0

JOHN DEWRANCE AND CO.,
176, GREAT DOVER STREET, LONDON, S.E.

GENESTE'S PATENT CONTRACTING PUMP BUCKET.

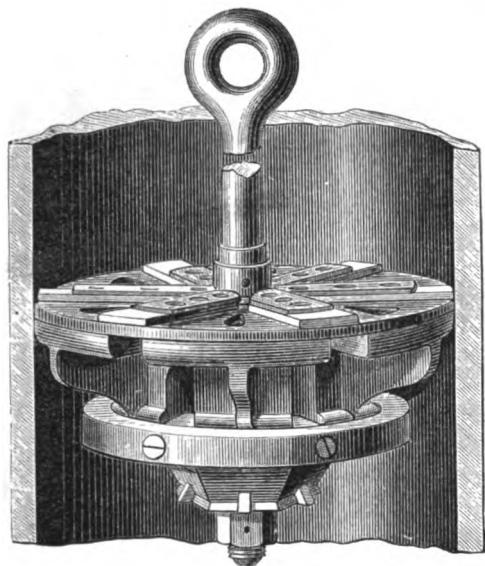


FIG. 203.

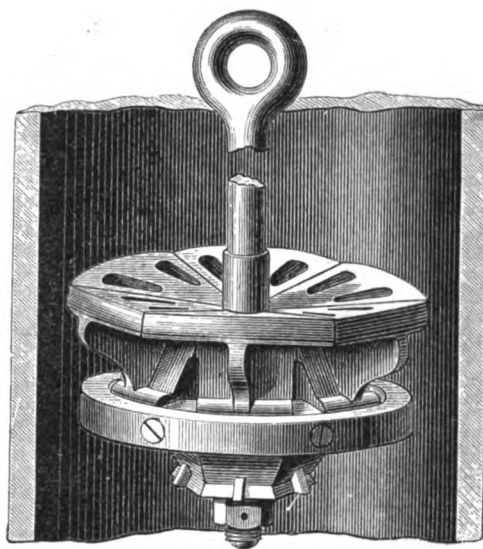


FIG. 203A.

The advantage of a good Pump Bucket that, while being perfectly tight on the up or suction stroke, shall be entirely frictionless on the down stroke, is too obvious to need any remark, and the use of such a Bucket in Sand Pumps, and in Deep-Well Pumping, by enabling the Pumps to be worked by chain or rope, is also apparent.

The Geneste Patent Contracting Pump Bucket not only descends entirely frictionless, but—as will be seen on referring to the Drawing, which shows the Bucket both in its up and down strokes—by contracting itself in the outside and largest diameter, gives a greater area for the water to flow past than any other arrangement of Bucket Valve; while at the same time it allows sand or other materials to more easily escape to the upper part of the Bucket, without injuring it or destroying the efficiency of the stroke.

As the Bucket descends by its own gravity, a slight rod, a chain, or even a rope, will work the Pump easily, the tension being a little more than the weight of the column of water to be lifted, plus the friction of the piston.

In fixing a Pump, a great saving of time and expense is effected, and all subsequent repairs can be executed without breaking any joints, which considerably lessens the cost.

The use of these Pump Buckets will be found of great advantage in ordinary Water Pumps, and it is also specially adapted for "Kennard's Patent Sand Pumps," which are now largely used in India, Egypt, and other places for sinking Cylinder foundations, &c.

In these Sand Pumps a tight Bucket will be a great improvement, and from their construction a chain or rope can be used instead of a rod.

The prices include a short length of rod fitted to centrepiece and the eye, which can be welded together to suit any length of stroke.

Messrs. J. DEWRANCE AND CO., 176, Great Dover Street, London, S.E., are the sole Licensees and Manufacturers of the GENESTE PATENT CONTRACTING PUMP BUCKET, and are prepared to supply them at the following prices:

Size, Gun Metal	..	2"	2½"	3"	3½"	4"	5"
Price	.. ..	7/6	10/0	14/6	16/0	18/6	26/0
Size, Cast Iron	..	6"	7"	8"	9"	10"	11"
Price	22/6	27/0	33/6	41/0	50/0	60/0

For Larger Sizes upon application.

JOHN DEWRANCE AND CO.,

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